This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (previously presented): For use with a node, a method comprising:

a) accepting, using the node, status information from at least two different kinds of routing protocols;

b) composing, using the node, an aggregated message including at least two indicators, each indicator identifying a different one of the at least two different kinds of routing protocols and the corresponding status information from each of the at least two different kinds of routing protocols as data within the aggregated message; and

c) sending, using the node, the aggregated message towards a neighbor node.

Claim 2 (previously presented): The method of claim 1 further comprising:

d) maintaining, using the node, a first timer for tracking a send time interval, wherein the acts of composing the aggregated message and sending the aggregated message are performed after expiration of the first timer; and

e) restarting, using the node, the first timer after the aggregated message is sent.

Claim 3 (previously presented): The method of claim 2 wherein the aggregated message further includes a dead time interval, and wherein the send time interval is less than the dead time interval.

Claim 4 (previously presented): The method of claim 2 wherein the aggregated message further includes a dead time interval, and wherein the send time interval is no more than one third of the dead time interval.

Claim 5 (original): The method of claim 2 wherein the send time interval is less than one second.

Claim 6 (original): The method of claim 2 wherein the send time interval is less than 100 msec.

Claim 7 (previously presented): The method of claim 1 wherein the aggregated message further includes a dead time interval.

Claim 8 (previously presented): The method of claim 1 wherein the act of sending the aggregated message includes providing the aggregated message in an Internet protocol packet.

Claim 9 (previously presented): The method of claim 8 wherein the act of sending the aggregated message towards the neighbor node includes setting a destination address in the Internet protocol packet to a multicast address associated with routers that support aggregated protocol liveness.

Claim 10 (previously presented): The method of claim 1 wherein the neighbor node has at least one routing protocol peering with at least one of the at least two routing protocols.

Claim 11 (previously presented): The method of claim 1 wherein the status information includes a routing protocol state selected from a group of routing protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 12 (previously presented): For use with a node, a method comprising:

a) receiving, using the node, an aggregated message including

i) for a first set of at least two different kinds of routing protocols of a neighbor node, at least two indicators, each indicator identifying a different one of the at least two different kinds of routing protocols and corresponding status information for each of the protocols of the first set of the at least two different kinds of routing protocols as data within the aggregated message, and

ii) a time interval; and

b) updating, using the node, neighbor node protocol status information using the aggregated message.

Claim 13 (previously presented): The method of claim 12 wherein the act of updating neighbor node protocol status information includes

i) setting, using the node, a first timer to the time interval and starting the first timer,

ii) if the first timer expires, setting, using the node, the status of each of the protocols of the neighbor node to down, and

iii) if a further message, sourced from the neighbor node, and including

A) for a second set of at least two protocols, at least two indicators, each indicator identifying the at least two routing protocols and corresponding status information for each of the routing protocols of the second set, and

B) a new time interval,

is received then, resetting, using the node, the first timer to the new time interval and restarting the first timer.

Claim 14 (original): The method of claim 13 wherein each of the time interval and the new time interval is less than one second.

Claim 15 (previously presented): The method of claim 12 wherein the status information includes a routing protocol state selected from a group of routing protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 16 (previously presented): The method of claim 13 wherein the act of updating neighbor node routing protocol status information further includes

iv) if the further message is received then, in addition to resetting the first timer to the new time interval and restarting the first timer, further

A) determining, using the node, whether the first set of at least two routing

protocols is the same as the second set of at least two routing protocols,

B) if the first set of at least two routing protocols is determined to be the same as the second set of at least routing two protocols, then for each of the at least two routing protocols of both the first and second sets having a changed status, informing, using the node, a locally running instance of the routing protocol of the changed status of its peer routing protocol of the neighbor node, and

C) if the first set of at least two routing protocols is determined to be different from the second set of at least two routing protocols, then

1) for any routing protocol in the second set but not in the first set, informing, using the node, a locally running instance of the routing protocol of the status indicated in the further message of its peer routing protocol of the neighbor node, and

2) for any routing protocol in the first set but not in the second set, informing, using the node, a locally running instance of the routing protocol that the status of its peer routing protocol of the neighbor node is down.

Claim 17 (previously presented): The method of claim 16 wherein each of the aggregated message and the further message include an indication of a relative message age, and wherein the act of updating neighbor node routing protocol status information includes,

iv) if the further message is received then, in addition to resetting the first timer to the new time interval and restarting the first timer, further

A) determining, using the node, whether the further message is younger than the aggregated message, and

B) if it is determined that the further message is not younger than the aggregated message, then discarding, using the node, the further message.

Claim 18 (previously presented): The method of claim 13 wherein each of the aggregated message and the further message include an indication of a relative message age, and wherein the act of updating neighbor node routing protocol status information includes,

iv) if the further message is received then, in addition to resetting the first timer to the new time interval and restarting the first timer, further

A) determining, using the node, whether the further message is younger than the aggregated message, and

B) if it is determined that the further message is not younger than the aggregated

message, then discarding, using the node, the further message.

Claim 19 (previously presented): A method for monitoring liveness of multiple protocols, the method comprising:

a) determining, at a first node, status information for at least two different kinds of routing protocols;

b) sending, from the first node, an aggregated message including at least two indicators, each indicator identifying a different one of the at least two different kinds of routing protocols and the corresponding determined status information for the at least two different kinds of routing protocols as data within the aggregated message to a second node;

c) receiving, at the second node, the aggregated message; and

d) updating, by the second node, first node routing protocol status information using the aggregated message.

Claim 20 (previously presented): The method of claim 19 wherein the aggregated message further includes a first time interval, and wherein the act of updating neighbor node routing protocol status information includes

i) setting a timer to the first time interval;

ii) starting the timer;

iii) determining whether or not a further message including routing protocol status information is received from the first node by

the second node before the expiration of the timer; and

iv) if it is determined that a further message including routing protocol status information is not received from the first node by the second node before the expiration of the timer, then informing peer routing protocols of the second node that the at least two routing protocols of the first node are down.

Claim 21 (previously presented): The method of claim 19 wherein the status information includes a routing protocol state selected from a group of protocols states including at least (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 22 (previously presented): A machine-readable medium having stored thereon a machine readable aggregated message comprising:

a) at least two indicators, each indicator identifying a different one of at least two different kinds of routing protocols of a node stored as data within the aggregated message;

b) status information, for the at least two different kinds of routing protocols of the node, of a state of each of the at least two routing protocols stored as data within the aggregated message; and

c) a dead interval.

Claim 23 (previously presented): The machine-readable medium of claim 22 wherein the status information

indicates a routing protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 24 (original): The machine-readable medium of claim 22 further comprising:

c) an identifier of the node.

Claim 25 (original): The machine-readable medium of claim 24 wherein the node is a router and wherein the identifier is a router identifier.

Claim 26 (original): The machine-readable medium of claim 22 further comprising:

c) an interface index.

Claim 27 (previously presented): For use with a node, apparatus comprising:

a) at least one processor;

b) at least one input device; and

c) at least one storage device storing processor-executable instructions which, when executed by one or more processors, perform a method including

i) accepting status information from at least two different kinds of routing protocols,

ii) composing, using the node, an aggregated message including at least two indicators, each indicator identifying a different one of the at least two different kinds of routing protocols and the corresponding status information from

each of the at least two different kinds of routing protocols as data within the aggregated message, and

iii) sending the aggregated message towards a neighbor node.

Claim 28 (previously presented): The apparatus of claim 27 wherein the method further includes

iv) maintaining a first timer for tracking a send time interval, wherein the act of composing the aggregated message and sending the aggregated message compose and send the aggregated message after expiration of the first timer, and

v) restarting the first timer after the aggregated message is sent.

Claim 29 (previously presented): The apparatus of claim 28 wherein the aggregated message further includes a dead time interval, and wherein the send time interval is less than the dead time interval.

Claim 30 (previously presented): The apparatus of claim 28 wherein the aggregated message further includes a dead time interval, and wherein the send time interval is no more than one third of the dead time interval.

Claim 31 (previously presented): The apparatus of claim 28 wherein the send time interval is less than one second.

Claim 32 (previously presented): The apparatus of claim 28 wherein the send time interval is less than 100 msec.

Claim 33 (previously presented): The apparatus of claim 27 wherein the aggregated message further includes a dead time interval.

Claim 34 (previously presented): The apparatus of claim 27 wherein the act of sending the aggregated message includes providing the aggregated message in an Internet protocol packet.

Claim 35 (previously presented): The apparatus of claim 34 wherein the act of sending the aggregated message includes setting a destination address in the Internet protocol packet to a multicast address associated with routers that support aggregated routing protocol liveness.

Claim 36 (previously presented): The apparatus of claim 27 wherein the neighbor node has at least one protocol peering with at least one of the at least two protocols.

Claim 37 (previously presented): The apparatus of claim 27 wherein the status information includes a routing protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 38 (previously presented): For use with a node, apparatus comprising:

a) at least one processor;

b) at least one input device; and

c) at least one storage device storing processor-executable instructions which, when

executed by one or more processors, perform a method including

i) receiving, using the at least one input, an aggregated message including

A) for a first set of at least two different kinds of routing protocols of a neighbor node, at least two indicators, each indicator identifying a different one of the at least two different kinds of routing protocols and corresponding status information for each of the protocols of the first set of the at least two different kinds of routing protocols as data within the aggregated message, and

B) a time interval, and

ii) updating neighbor node protocol status information using the aggregated message.

Claim 39 (previously presented): The apparatus of claim 38 wherein the act of updating neighbor node protocol status information includes

A) setting a first timer to the time interval and starting the first timer,

B) setting the status of each of the routing protocols of the neighbor node to down if the first timer expires, and

C) if a further message, sourced from the neighbor node, and including

1) for a second set of at least two protocols, at least two indicators, each indicator identifying the at least two routing protocols and corresponding status

information for each of the routing protocols of the second set, and

2) a new time interval,

is received, resetting the first timer to the new time interval and restarting the first timer.

Claim 40 (previously presented): The apparatus of claim 39 wherein each of the time interval and the new time interval is less than one second.

Claim 41 (previously presented): The apparatus of claim 38 wherein the status information includes a routing protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 42 (previously presented): The apparatus of claim 39 wherein the act of updating neighbor node routing protocol status information further includes

D) determining whether the first set of at least two routing protocols is the same as the second set of at least two protocols,

E) if the first set of at least two routing protocols is determined to be the same as the second set of at least two routing protocols, then for each of the at least two routing protocols of both the first and second sets having a changed status, informing a locally running instance of the routing protocol of the changed status of its peer routing protocol of the neighbor node, and

F) if the first set of at least two routing protocols is determined to be different from the second set of at least two routing protocols,

1) for any routing protocol in the second set but not in the first set, informing a locally running instance of the routing protocol of the status indicated in the further message of its peer routing protocol of the neighbor node, and

2) for any routing protocol in the first set but not in the second set, informing a locally running instance of the routing protocol that the status of its peer routing protocol of the neighbor node is down.

Claim 43 (previously presented): The apparatus of claim 42 wherein each of the aggregated message and the further message include an indication of a relative message age, and wherein the act of updating neighbor node routing protocol status information includes,

D) determining whether the further message is younger than the aggregated message, and

E) if it is determined that the further message is not younger than the aggregated message, then discarding the further message.

Claim 44 (previously presented): The apparatus of claim 39 wherein each of the aggregated message and the further message include an indication of a relative message age,

and wherein the act of updating neighbor node routing protocol status information includes,

D) determining whether the further message is younger than the aggregated message, and

E) if it is determined that the further message is not younger than the aggregated message, then discarding the further message.

Claim 45 (previously presented): A system comprising:

a) a first node adapted to

i) determine status information for at least two different kinds of routing protocols, and

ii) send an aggregated message including at least two indicators, each indicator identifying a different one of the at least two different kinds of routing protocols and the corresponding determined status information for the at least two different kinds of routing protocols as data within the aggregated message to a second node; and

b) the second node adapted to

i) receive the aggregated message; and

ii) update first node routing protocol status information using the aggregated message.

Claim 46 (previously presented): The system of claim 45 wherein the aggregated message further includes a first time interval, and wherein the act of updating the first node routing protocol status information includes

A) setting a timer to the first time interval;

B) starting the timer;

C) determining whether or not a further message including routing protocol status information is received from the first node by the second node before the expiration of the timer; and

D) if it is determined that a further message including routing protocol status information is not received from the first node by the second node before the expiration of the timer, then informing peer routing protocols of the second node that the at least two routing protocols of the first node are down.

Claim 47 (previously presented): The system of claim 46 wherein the status information includes a routing protocol state selected from a group of protocols states including at least (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

Claim 48 (previously presented): The method of claim 1 wherein the status information is local routing protocol status information.

Claim 49 (previously presented): The method of claim 1 wherein the status information is local status information and wherein each of the at least two different kinds of routing protocols is being run locally on the node.

Claim 50 (previously presented): The method of claim 1 wherein the status information of at least one of the at

least two different kinds of routing protocols included in the aggregated message includes a routing protocol state set to protocol not reporting.

Claim 51 (previously presented): The method of claim 1 wherein the status information of at least one of the at least two different kinds of routing protocols included in the aggregated message includes a routing protocol state set to protocol restarting.

Claim 52 (previously presented): The method of claim 12 wherein the status information of at least one of the at least two different kinds of routing protocols included in the first set of at least two different kinds of routing protocols included within the aggregated message includes a routing protocol state set to protocol not reporting.

Claim 53 (previously presented): The method of claim 12 wherein the status information of at least one of the at least two different kinds of routing protocols included in the first set of at least two different kinds of routing protocols included within the aggregated message includes a routing protocol state set to protocol restarting.

Claim 54 (previously presented): The method of claim 1 wherein a first one of the at least two indicators identifies a first kind of routing protocol from a group of routing protocols consisting of (A) Border Gateway Protocol (BGP), (B) Intermediate system to intermediate system (IS-IS), (C) Open Shortest Path First - Version 2

(OSPF v2), (D) Open Shortest Path First -Version 3 (OSPF v3), (E) Routing Information Protocol Version 1/Version 2 (RIP v1/v2), (F) Routing Information Protocol next generation (RIP-ng), (G) Protocol-Independent Multicast (PIM), (H) Distance Vector Multicast Routing Protocol (DVMRP), (I) Label Distribution Protocol (LDP), (J) Resource Reservation Protocol (RSVP) and (K) Link Management Protocol (LMP), and

wherein a second one of the at least two indicators identifies a second kind of routing protocol, which is different from the first kind of routing protocol identified, from a group of routing protocols consisting of (A) Border Gateway Protocol (BGP), (B) Intermediate system to intermediate system (IS-IS), (C) Open Shortest Path First - Version 2 (OSPF v2), (D) Open Shortest Path First -Version 3 (OSPF v3), (E) Routing Information Protocol Version 1/Version 2 (RIP v1/v2), (F) Routing Information Protocol next generation (RIP-ng), (G) Protocol-Independent Multicast (PIM), (H) Distance Vector Multicast Routing Protocol (DVMRP), (I) Label Distribution Protocol (LDP), (J) Resource Reservation Protocol (RSVP) and (K) Link Management Protocol (LMP).

Claim 55 (previously presented): The method of claim 12 wherein a first one of the at least two indicators identifies a first kind of routing protocol from a group of routing protocols consisting of (A) Border Gateway Protocol (BGP), (B) Intermediate system to intermediate system (IS-IS), (C) Open Shortest Path First - Version 2 (OSPF v2), (D) Open Shortest Path First -Version 3 (OSPF v3), (E) Routing Information Protocol Version 1/Version 2 (RIP v1/v2), (F) Routing Information Protocol next

generation (RIP-ng), (G) Protocol-Independent Multicast (PIM), (H) Distance Vector Multicast Routing Protocol (DVMRP), (I) Label Distribution Protocol (LDP), (J) Resource Reservation Protocol (RSVP) and (K) Link Management Protocol (LMP), and

wherein a second one of the at least two indicators identifies a second kind of routing protocol, which is different from the first kind of routing protocol identified, from a group of routing protocols consisting of (A) Border Gateway Protocol (BGP), (B) Intermediate system to intermediate system (IS-IS), (C) Open Shortest Path First - Version 2 (OSPF v2), (D) Open Shortest Path First -Version 3 (OSPF v3), (E) Routing Information Protocol Version 1/Version 2 (RIP v1/v2), (F) Routing Information Protocol next generation (RIP-ng), (G) Protocol-Independent Multicast (PIM), (H) Distance Vector Multicast Routing Protocol (DVMRP), (I) Label Distribution Protocol (LDP), (J) Resource Reservation Protocol (RSVP) and (K) Link Management Protocol (LMP).

Claim 56 (new): The method of claim 1 wherein the at least two different kinds of routing protocols for which the status information has been accepted have been established prior to accepting the status information from the at least two different kinds of routing protocols.

Claim 57 (new): The method of claim 12 wherein the at least two different kinds of routing protocols for which the corresponding status information has been received in the aggregated message have been established prior to receiving the aggregated message.